

as it has been heretofore. It remains for all who are concerned to see that our water sources, whether public or private, shall be free from all risk of contamination, and so to arrange our means of house and of public drainage as to secure all dwellings against the entrance of sewer air into them. Much has been done in these directions since cholera last threatened our shores, but more remains to be done if we are to rid ourselves of all the conditions which will tend to favour the spread of that disease should it succeed in finding an entrance into our country.

MODERN PERSIA

The Land of the Lion and Sun: or, Modern Persia. By C. J. Wills, M.D. (London: Macmillan and Co., 1883.)

ONE of the "Fathers," the great Austin we believe of Hippo, when asked which was the first Christian virtue, replied, Humility! And the second? Humility! And the third? Still Humility! So Dr. Wills would seem consciously or unconsciously to think that of travellers the first, second, and third virtue is *anecdote*! The result of this belief is one of the most graphic and entertaining books of travel ever published. With anecdote it begins, with anecdote it ends, and its substance is anecdote, and all these endless anecdotes are themselves distinguished by three cardinal virtues. They are characteristic, they are well told, and they are infinitely varied. By way of experiment we have opened the book at haphazard at twelve different places, and at every place there was an anecdote, some pithy story or other illustrating the social customs and habits of the Persians and even of the very plants and animals of the Iranian world, where the author's lot was cast for the space of fifteen years (1866-1881) as "one of the medical officers of Her Majesty's Telegraph Department in Persia." On one of the pages thus exposed occurs the subjoined incident bearing directly on the "scorpion controversy" recently carried on in the correspondence columns of NATURE:—

"A story was told me by the late Dr. Fagergren, a Swede who had been twenty-five years in Shiraz, to the effect that scorpions, when they see no chance of escape, commit suicide; and he told me that when one was surrounded by a circle of live coals, it ran round three times and then stung itself to death. I did not credit this, supposing that the insect was probably scorched and so died. I happened one day to catch an enormous scorpion of the black variety, and to try the accuracy of what I supposed to be a popular superstition, I prepared in my courtyard a circle of live charcoal a yard in diameter. I cooled the bricks with water, so that the scorpion could not be scorched, and tilted him into the centre of the open space. He stood still for a moment, then to my astonishment ran rapidly round the circle three times, came back to the centre, turned up his tail where the sting is, and deliberately by three blows stabbed or stung himself in the head; he was dead in an instant. Of this curious scene I was an eye-witness, and I have seen it repeated by a friend in exactly the same way since, on my telling the thing, and with exactly the same result. For the truth of this statement I am prepared to vouch" (p. 249).

More startling is the account at p. 307 of the "house-snake and sparrow."

"One morning I heard a great twittering of birds, and on looking out I saw some thirty sparrows on the top of a half-wall. They were all jumping about in a very excited manner, and opening their beaks as if enraged, screaming and chattering. Presently I saw a pale-yellow coloured snake deliberately advancing towards them from the ornamented wooden window from which he hung. They appeared *all* quite fascinated, and none attempted to fly away. The snake did not take the nearest, but deliberately chose one and swallowed him. I got my gun, and notwithstanding the entreaties of my servants, some of whom wept, assuring me that the reptile was inhabited by the late master of the house, I gave him a dose of duckshot. He was a big snake, some four feet long. I cut him open and extracted the sparrow. After some ten minutes' exposure to the sun, the bird got up, and after half an hour flew away apparently unhurt. The snake was not a venomous one, nor do we find venomous ones in houses in Persia."

Suitable also for the columns of a *scientific* journal may be the subjoined about the "transit of Venus":—

"On the high road to the capital from the Caspian the members of the expedition sent by the German Government to observe the transit of Venus met a lovely vision in habit and hat on a prancing steed. They halted, saluted, and declared their errand.

"To observe the transit of Venus, ah, well, you can go home now, gentlemen, *your duty is done*, good bye;' and the pretty vision disappears at a smart canter 'away in the ewigkeit,' as Hans Breitmann says. *That* joke dawned on those Germans after some hours" (p. 331).

Dr. Wills has naturally a good deal to say about the Persian system of medicine, which "has its advantages in its delightful simplicity. All diseases are cold or hot. All remedies are hot or cold. A hot disease requires a cold remedy, and *vice versa*. Now if the Persian doctor is called in, and has any doubt as to the nature of the disorder, he prescribes a hot treatment, let us say. If the patient gets better, he was right; if worse, then he prescribes a cold remedy, and sticks to it. He thus gets over all need for diagnosis, all physiological treatment, and he cannot, according to his own lights, be wrong. . . . His fee is a few pence, or more generally he undertakes the case on speculation: *so much*, of which he is lucky if he gets half, if the patient gets well; nothing if he doesn't. . . . Remedies and contrivances of a barbarous nature, such as putting the patient in fresh horse-dung, or sowing him up in a raw hide, are the rule rather than the exception" (p. 34).

Talismans, spells, and charms of all sorts are also much relied upon, in connection with which a characteristic story is told:—

"During the cholera in Shiraz I was attending the daughter of the high priest, who was sitting surrounded by a crowd of friends, petitioners, and parasites. He was writing charms against the cholera. I, out of curiosity, asked him for one; it was simply a strip of paper on which was written a mere scribble, which meant nothing at all. I took it and carefully put it away. He told me that when attacked by cholera I had but to swallow it and it would prove an effectual remedy. I thanked him very seriously, and went my way. That day he called and presented me with two sheep and a huge cake of sugar-candy weighing thirty pounds! I did not quite see why he gave me the present, but he laughingly told me that my *serious* reception of his talisman had convinced the many bystanders of its great value, and a charm desired by an unbelieving European doctor must be potent indeed. 'You see, you might have laughed at my

beard; you did not. I am grateful. But if I could only say that you had *eaten* my charm, ah—then!’ ‘Well,’ I replied, ‘say so if you like,’ and our interview ended” (p. 291).

Like most Europeans who have lived long amongst them, our author learnt to regard with very kindly feelings the simple-minded natives who with all their faults are endowed with many noble qualities of head and heart. The Persian is here described as “hospitable and obliging, as honest as the general run of mankind, and especially well disposed towards the foreigner. Home virtues amongst the Persians are many. He is very kind and indulgent to his children, and as a son his respect for both parents is excessive. But the full stream of his love and reverence is reserved for his mother; and an undutiful son or daughter is hardly ever known in the country” (p. 314). Here of course follows a flood of anecdotes, some of which serve also to illustrate the character of the Armenians, of whom he has little good to say. “I will not trust myself,” he writes, “to give my opinion of the Armenians. Of course I have known brilliant exceptions; but when I say that I indorse all that Morier, Malcolm, Lady Shiel, and the standard writers on Persia have said of these people, I need not add that my impression is unfavourable in the extreme. They possess one good quality, however, thrift” (p. 316).

In a work professing to give little more than personal experiences, valuable because derived from a lengthy residence in every part of the country, it would be unfair to look for any systematic information regarding the physical features, products, or natural resources of the land. Nevertheless, many useful details connected with these points occur here and there, and the statements made regarding the abundance and extraordinary cheapness of good provisions in all the fertile provinces would seem to justify the conclusion that Persia is not yet quite “played out.” Cheese and butter at twopence a pound, flour and bread at a penny in the towns and much less in villages, eggs at ninepence per four or five dozen, quails and partridges at fourpence a brace, hares at fourpence each, lamb and mutton at proportionately low rates, make Persia “the poor man’s paradise, in fact, to live in, the cheapest country in the world” (p. 298).

The work is furnished with a convenient glossary and an index, which contains some rather amusing entries; but there are neither maps nor illustrations beyond a solitary *chupper-khana* (posthouse) facing the title-page. But no such attractions were needed to render the “Land of the Lion and Sun” a far more entertaining book than most of our fashionable three-volume novels.

A. H. KEANE

CHLOROPHYLL CORPUSCLES AND PIGMENT BODIES IN PLANTS

Ueber die Entwicklung der Chlorophyllkörner und Farbkörper. By A. W. F. Schimper. (*Bot. Zeitung*, 1883.)

Ueber Chlorophyllkörner, Stärkebildner und Farbkörper. By A. Meyer. (*Bot. Centralblatt*, 1882.)

CONTRIBUTIONS to a more exact knowledge of the contents of the vegetable cell have increased of late to an extent which justifies the hope that some generalisa-

tion of the facts may before long be possible; meanwhile, botanists must have experienced a feeling akin to dismay at the scattered condition of much of the literature, and the apparent hopelessness of collating the facts dealing with normal and abnormal cell contents. The works of Strasburger, Schmitz, Schimper, and others have already cleared the way to a better comprehension of many details, especially with regard to the cell nucleus and starch grains; but with each step it has been felt that the pushing back of the phenomena towards a common cause has raised other difficulties hitherto unforeseen.

In the isolated position of such structures as chlorophyll grains and pigment corpuscles as unexplained cell contents, we have an illustration of wide significance in this connection, and the attempt to bring all such bodies as these and the “starch-forming corpuscles” of Schimper into definite relationship one with another must be welcomed as promising much simplification of nomenclature and discussion, the more so, since these relationships are now shown to be genetic, and therefore real. Schimper in Bonn, and A. Meyer in Strasburg, proceeding independently, have arrived at the conclusion that the chlorophyll corpuscles, “starch-forming corpuscles,” and pigment bodies of the higher plants are simply the more or less modified and mature conditions of certain minute protoplasmic structures found together with the nucleus in the youngest cells of any meristem.

Whereas botanists have assumed that chlorophyll grains, starch-formers, nuclei, &c., are produced free in the protoplasm of the cell, we are now called upon to note that such is not the case; but that these bodies arise from distinct structures present in the young cell from its earliest existence, and that any pigment (green or otherwise), starch grains (directly assimilated or not), &c., found in connection with the structures named, arise by later changes in the substance of the protoplasmic corpuscles produced by continuous growth and division of the few, minute “plastids” found in the young cell.

Meyer and Schimper agree in all essential points regarding the relationship and development of these bodies, and the slight differences in details and nomenclature between the two investigators in no way affect the main question.

To quote an example, we may take Schimper’s description of the development of the pigment bodies occurring in the flower of *Hemerocallis fulva*. The cells of the perigone contain brick-red crystalline needles or three-pointed tablets, which arise as follows:—

In the very young flower bud, the cells contain, besides the nucleus and cell-protoplasm, minute bodies which Schimper names *plastidia*—a general term for these bodies in all meristems, and independent of any function afterwards performed by them. When the flower bud is already green the *plastidia* nearest the light have acquired a distinct green colour, and function, no doubt, as chlorophyll corpuscles; all such green *plastidia* are called by Schimper *chloroplastidia*. The *plastidia* in the cells more deeply situated, however, remain pale, and may be called *leukoplastidia*. All stages intermediate between *leukoplastidia* and *chloroplastidia* occur. The small lenticular *chloroplastidia* increase in size, become flatter, and divide as the cell grows. They then become narrower and pointed, some becoming needle- or spindle-shaped;